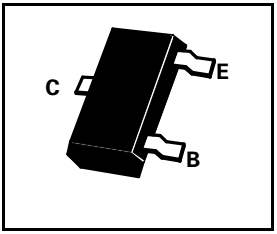
SuperSOT
SOT23 NPN SILICON POWER (SWITCHING) TRANSISTORS

ISSUE 3 - NOVEMBER 1995

FMMT617 FMMT618 FMMT619 FMMT624 FMMT625

FEATURES

* **625mW POWER DISSIPATION**
* **I_C CONT 3A**
* 12A Peak Pulse Current
* Excellent H_{FE} Characteristics Up To 12A (pulsed)
* Extremely Low Saturation Voltage E.g. 8mV Typ.
* Extremely Low Equivalent On Resistance; **$R_{CE(sat)}$**



DEVICE TYPE	COMPLEMENT	PARTMARKING	$R_{CE(sat)}$
FMMT617	FMMT717	617	**50mΩ at 3A**
FMMT618	FMMT718	618	**50mΩ at 2A**
FMMT619	FMMT720	619	**75mΩ at 2A**
FMMT624	FMMT723	624	-
FMMT625	–	625	-

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	FMMT 617	FMMT 618	FMMT 619	FMMT 624	FMMT 625	UNIT
Collector-Base Voltage	V_{CBO}	15	20	50	125	150	V
Collector-Emitter Voltage	V_{CEO}	15	20	50	125	150	V
Emitter-Base Voltage	V_{EBO}	5	5	5	5	5	V
Peak Pulse Current**	I_{CM}	12	6	6	3	3	A
Continuous Collector Current	**I_C**	**3**	**2.5**	**2**	**1**	**1**	**A**
Base Current	I_B	500					mA
Power Dissipation at T_{amb}=25°C*	**P_{tot}**	**625**					**mW**
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150					°C

* Maximum power dissipation is calculated assuming that the device is mounted on a ceramic substrate measuring 15x15x0.6mm

**Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

Spice parameter data is available upon request for these devices

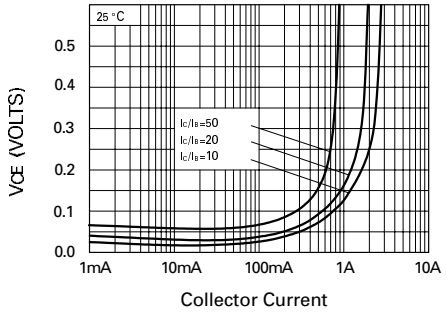
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	FMMT624			FMMT625			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	125	250		150	300		V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	125	160		150	175		V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		5	8.3		V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			100			 100	nA nA	V_{CB}=100V V_{CB}=130V
Emitter Cut-Off Current	I_{EBO}			100			100	nA	V_{EB}=4V
Collector Emitter Cut-Off Current	I_{CES}			100			 100	nA nA	V_{CES}=100V V_{CES}=130V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		26 70 160 165	50 150 220 250		26 110 180	50 200 300	mV mV mV mV mV	I_C=0.1A, I_B=10mA* I_C=0.1A, I_B=1mA* I_C=0.5A, I_B=50mA* I_C=0.5A, I_B=10mA* I_C=1A, I_B=50mA*
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		0.85	1.0		0.85	1.0	V	I_C=1A, I_B=50mA*
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$		0.7	1.0		0.74	1.0	V	I_C=1A, V_{CE}=10V*
Static Forward Current Transfer Ratio	h_{FE}	200 300 100	400 450 140 18		200 300 30	400 450 45 15			I_C=10mA, V_{CE}=10V* I_C=0.2A, V_{CE}=10V* I_C=1A, V_{CE}=10V* I_C=3A, V_{CE}=10V*
Transition Frequency	f_T	100	155		100	135		MHz	I_C=50mA, V_{CE}=10V f=100MHz
Output Capacitance	C_{OBO}		7	15		6	10	pF	V_{CB}=10V, f=1MHz
Turn-On Time	$t_{(ON)}$		60			160		ns	V_{CC}=50V, I_C=0.5A I_{B1}=-I_{B2}=50mA
Turn-Off Time	$t_{(OFF)}$		1300			1500		ns	

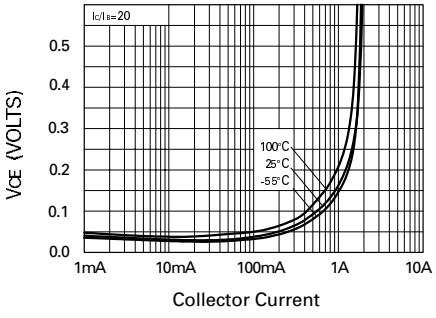
*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

FMMT624

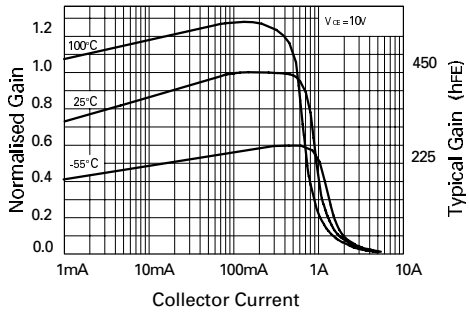
TYPICAL CHARACTERISTICS



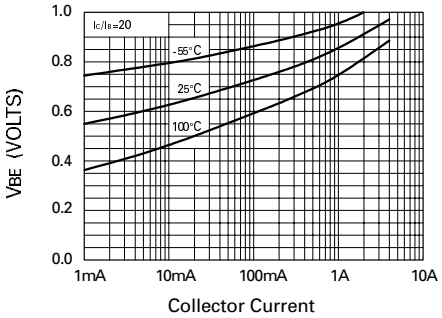
VCE(SAT) vs IC



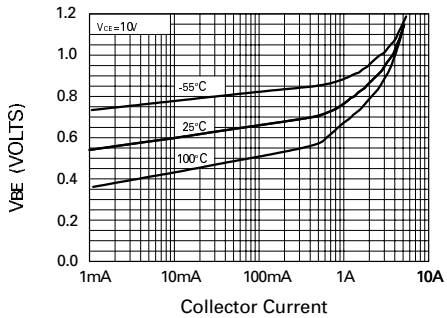
VCE(SAT) vs IC



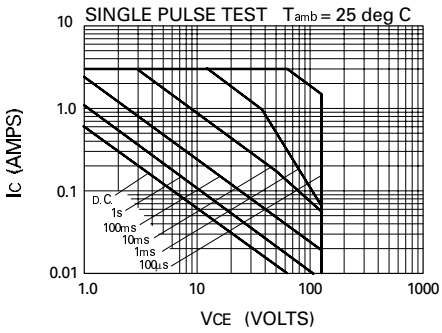
hFE vs IC



VBE(SAT) vs IC

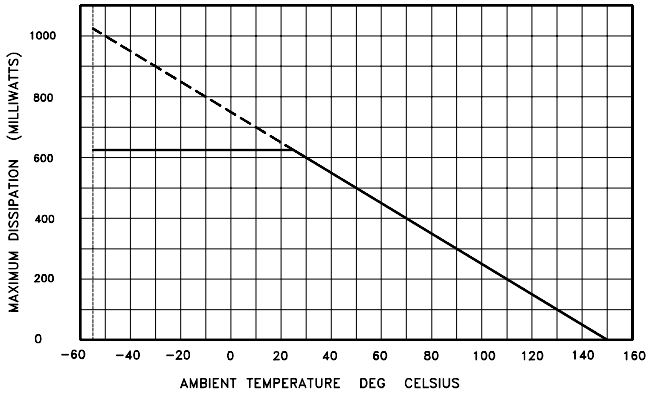


VBE(ON) vs IC

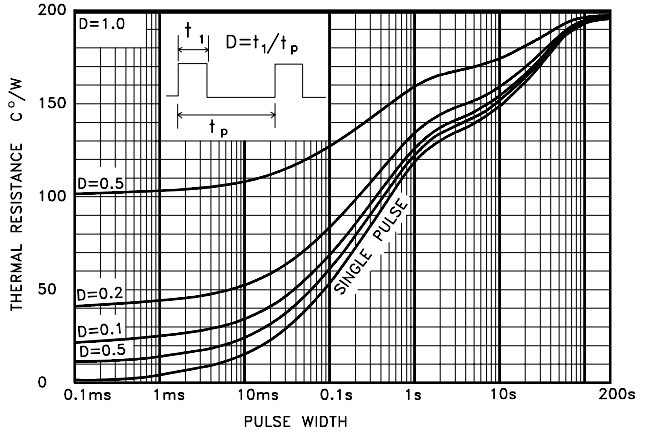


Safe Operating Area

THERMAL CHARACTERISTICS AND DERATING INFORMATION



DERATING CURVE



MAXIMUM TRANSIENT THERMAL RESISTANCE

* Reference above figures, Devices were mounted on a 15mmx15mm ceramic substrate